

EPA Preliminary/Draft comments on the Record of Decision for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal at the Environmental Management Disposal Facility, Oak Ridge, Tennessee (DOE/OR/01-2794&D1)

General Comments

1. This Record of Decision (ROD) is specifically selecting Central Bear Creek Valley (CBCV) Site 7c as the location for the EMDF. Many references throughout the ROD cite CBCV but nothing is mentioned specific to Site 7c. The 2017 RI/FS also identifies Site 7a (in a dual site plan) overlapping Site 7c and this is shown in the ROD as Figure 2.2. Which landfill configuration is being selected? Please specify Site 7c in association with reference to the CBCV and identify it on a map so the reader can understand its specific location and configuration in Bear Creek Valley (Note: Site 7c is shown in Figures 2.4. and 2.5. on pages 56 and 58 of the D1 ROD but not identified as such. Site 7c should be clearly identified as the location of the EMDF throughout this ROD).
2. Sections 1.1 and 2.1, and repeated throughout document. The name of the NPL site is Oak Ridge Reservation (USDOE), per the original rule, published in 48184 - 48189 Federal Register / Vol. 54, No. 223 / Tuesday, November 21, 1989. The D1 ROD consistently identifies the site as Oak Ridge NPL site, rather than using the correct term Oak Ridge Reservation (USDOE) NPL site. Abbreviating the site name is acceptable, but the correct text should be used in Sections 1.1 and 2.1, and the abbreviation defined (see [[HYPERLINK "https://semspub.epa.gov/work/HQ/189634.pdf"](https://semspub.epa.gov/work/HQ/189634.pdf)]).
3. The ROD includes an evaluation of greenhouse gas emissions for the offsite disposal alternative. EPA recommends also including in the ROD a discussion of the potential impacts of climate change on the proposed remedy, including potential changes in rainfall, storm events and hydrologic conditions, and climate resiliency measures to be addressed in the design and construction of the remedy.
- 4.

Specific Comments

1. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. 2. It is worth noting that the RI/FS was not approved by the FFA parties, rather, in the December 2017 dispute resolution agreement the parties agreed to move forward with the Proposed Plan. Suggest adding a footnote to the first reference to the RI/FS (DOE 2017a) providing this explanation.

X. Section 1.3, ASSESSMENT OF THE SITE, p. 1-5:

A. The remedial action objectives (RAOs) are unclear because they do not specify the time frame when the objectives will be met such as whether the objectives will be met throughout the construction, operation, and post-closure care of the landfill. Section 1.3 should reference tables of applicable or relevant and appropriate requirements (ARARs) in Appendix A. Chemical specific ARARs should be tabulated in the ROD and referenced in Section 1.3.

B. Remedial action objectives (RAOs) should be revised to add language to restore water quality

Commented [AC1]: Let's discuss these comments internally before sharing with DOE. Reserve this one for now.

in Bear Creek to meet ARARs and restore beneficial uses for Bear Creek to support healthy populations and communities of benthic macroinvertebrates and fish relative to a suitable reference location.

X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. Twice the text references “30 CFR” when it should reference parts of 40 CFR. Wrong citation also occurs in top paragraph on page 2-50.

X. Section 1.5, STATUTORY DETERMINATIONS, p. 1-7. Add text that states the selected remedy was determined in the ROD to provide the best balance of tradeoffs among the alternatives with respect to the balancing criteria.

X. Figure 2. Land use (from Phase I BCV ROD) and disposal sites evaluated in Bear Creek Valley., p. 2-5. The outlines for Site 7A and Site 7C overlap in a way that confuse the reader. Please make changes to the outlines that will allow the reader to clearly differentiate between the two proposed locations for the EMDF.

X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-8. Based on the topography shown on Figure 2.3 (Phase I characterization and site characteristics of the EMDF site), it is unclear if the outside perimeter of the Environmental Management Disposal Facility (EMDF) landfill is sufficiently set back to allow for the engineered perimeter structures, such as mechanically stabilized earth walls or similar structures, needed to grade the site to the top of the geologic buffer. This is of particular note given the locations of streams NT-10 and NT-11, as shown on Figure 2.5 (EMDF conceptual site layout). Revise the ROD text to clarify if the outside perimeter of the EMDF landfill is sufficiently set back to allow for the engineered perimeter structures needed to grade the site to the top of the geologic buffer.

X. Section 2.3, HIGHLIGHTS OF COMMUNITY PARTICIPATION, p. 2-10. The text states:
This remedy was chosen in accordance with CERCLA, as amended by SARA and the NCP. This decision was based on the Administrative Record prepared for this project. The principal documents supporting this ROD include the following:

- Remedial Investigation/Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal, Oak Ridge, Tennessee (DOE 2017a)
- **Focused Feasibility Study for Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation, Oak Ridge, Tennessee (DOE 2016)**
- Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste (DOE 2018a). (Bold added)

The second bullet shown in italics above should be revised to clarify that this document ~~will have been~~ ~~has been~~ updated and approved ~~by the time the ROD is approved~~ (cite new approval date) and is not the original 2016 version of the document. This new version should be consistent with the D2 ROD (running parallel and approved before the final ROD is approved) to include the work conducted to address the EPA Administrator’s decision in the protection of human health and the environment from radionuclide discharges to Bear Creek. All of the Dispute Resolution Agreement Team approved documents and corresponding calculations to establish safe radionuclide discharge limits should be included in this revised wastewater FFS.

X. Section 2.4, SCOPE AND ROLE OF THE ACTION, p. 2-11. The text states: “The selection of the remedial action involving onsite disposal at EMDF in BCV is consistent with the recommendations

made by EUWG; however, the EUWG recommendation favored those areas already contaminated...” This statement does not reflect the EUWG recommendation, which specifically identifies CBCV within Zone 2. Suggested text: “Notwithstanding the EUWG recommendation favoring placement of long-term waste disposal facilities in areas already contaminated or near areas of contamination, for a variety of technical reasons discussed under Sect. 2.12.1, the FFA parties believe that CBCV is the preferred location for the landfill.”

X. Section 2.5.3, Surface Water, p. 2-13. Section 2.5.3 and Figure 2.3. Though the text refers to drainage feature D-11 East, the figure does not include drainage feature D-11 East. (None of the figures include D-11 East.) Please update figures.

X. Section 2.5.2, Groundwater, p. 2-13. The text refers to the absence of strike-parallel groundwater contamination in the Nolichucky Shale and Maryville Limestone around the Bear Creek Burial Grounds (BCBG) part of BCV. As noted in prior Remediation Effectiveness Reports and commented upon by EPA, there is an absence of groundwater monitoring in critical areas of the outcrop belts of these formations to the west of the BCBG. Thus, it is inappropriate to cite the groundwater conditions around the BCBG as supporting some conclusion or inference that groundwater contamination would not likely migrate along strike in these formations to the west of the EMDF area.

X. Section 2.5.3, Surface Water, p. 2-13. The second paragraph of Section 2.5.3 should add an explanation for the losing character of the streams. A losing stream implies a karst condition which is inconsistent with the characterization of the EMDF setting presented in Section 2.5.1.

X. Section 2.5.4, Ecological Resources, p. 2-14. Please describe the area of the wetland delineation study. It is variously referred to as “a broader area” and “expanded study area” but details regarding the area is not described or depicted in a figure.

X. Section 2.5.4, Ecological Resources, p. 2-14. There is no discussion of the anticipated or potential impacts to the Bear Creek riparian system. Will tree clearing for the landfill impact the creek (loss of shade, erosion, siltation, etc)? How will additional stormwater due to land clearing impact Bear Creek? How will construction activities, rerouting the roads, etc., impact Bear Creek?

X. Section 2.5.5, Cultural Resources, p. 2-15. Section 2.5.5 indicates that DOE intends to avoid the Douglas Chapel Cemetery and preserve it in situ as well as maintain access to the cemetery for visitors; however, this is not conveyed on Figure 2.5 (EMDF conceptual site layout). Specifically, no rerouted roads to the cemetery are shown. Revise the ROD to clarify how access to the Douglas Chapel Cemetery will be maintained for visitors given the proximity of the cemetery to the EMDF, borrow area, and support facility, shown on Figure 2.5.

X. Section 2.7, SUMMARY OF SITE RISKS, p. 2-16.

A. Please discuss the baseline risks from current conditions in Bear Creek. Discuss whether risk in question is additive risk on top of risks already present before construction of the facility. Describe the current ranges of contaminants in fish tissues and how the remedy will reduce the body burdens of contaminants in fish tissue to restore beneficial uses including support of healthy populations and communities of aquatic life.

Commented [AC2]: Reserve this comment until after we discuss internally.

B. TDEC has classified Bear Creek as having a fishable/swimmable goal. Bear Creek is CWA 303(d) listed for not currently achieving its designated uses on account of PCBs, cadmium and

mercury. The creek lacks additional capacity to take on increased discharges of pollutants released from the landfill without increasing the degree of degradation of fish and macroinvertebrate communities by physical alteration and addition of pollutants. Releases from the landfill will likely further degrade downstream water bodies on the CWA 303(d) list. The ROD should discuss how CWA and TDEC 0400.40.03 were considered in the selection of the remedy.

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. Please correct the acronym in the following text:

Prevent adverse impacts to water resources (surface water and groundwater) from CERCLA waste or contaminants released from the waste through meeting chemical-, location-, and action-specific ARARs, and by preventing exposure that exceeds a human health risk of 10^{-4} to 10^{-6} **ECLR** or HI of 1. (Bold and underline added)

The acronym should be ELCR - excess lifetime cancer risk.

X. Section 2.9.2, Alternative 2 – Onsite Disposal Alternative, p. 2-18. The description of the four sites evaluated for potential location of EMDF use different terminology than figure 2.2 (p. 2-5). Help the reader match the four locations described in the text to the figure. For example (shown in red text):

- East Bear Creek Valley (EBCV) site, just east of the existing EMWMF (labeled Site 5 on figure 2.2)
- West Bear Creek Valley (WBCV) site, located approximately 2.5 miles west of the existing EMWMF (Site 14)
- Dual site, which includes a site beside and to the west of the existing EMWMF, and a second site in CBCV, located 1.5 miles west of the existing EMWMF (Sites 6b and 7a)
- CBCV, expansion of one of the dual sites (Site 7c).

X. Table 2.1 Summary of CERCLA evaluation criteria for disposal alternatives (cont.), p. 2-22. Short-term effectiveness: The table includes collection of leachate in a leachate collection system, but does not discuss treatment of leachate, and does not discuss collection and treatment of contaminated stormwater (also known as “contact water”). Please add a brief description of how that wastewater will be managed.

X. Section 2.10.3, Long-term Effectiveness and Permanence, p. 2-26. The WAC were not fully developed at the time of the D1 ROD preventing the EPA from quantifying the long-term risk of the disposal facility. Without this information the protectiveness of the selected remedy could not be assessed. Provide a reference in this section to that information in this ROD.

X. Section 2.10.5, Short-term Effectiveness, p. 2-27. There is a discussion regarding short-term environmental effects of onsite disposal, such as land disturbance and loss of habitat, however, it does not address impacts of increased stormwater or discharges of landfill wastewater to Bear Creek or tributaries to Bear Creek. Please add that information to this discussion.

X. Section 2.10.9, Community Acceptance, p. 2-29. The text states “Although the SSAB did not submit comments during the public comment period, they had provided earlier endorsement of the EMDF.” Please provide clarification. In what form did the SSAB provide endorsement? Is this endorsement

available to the public? Please provide a reference to that location (and number if referenced).

X. Section 2.10.10, NEPA Values, p. 2-30. What are the NEPA requirements for this decision/action? ~~Does this section represent a NEPA analysis? Please define the term "NEPA values." Briefly describe the role of NEPA in this decision.~~ Was a NEPA Environmental Assessment or Environmental Impact Statement prepared; or not required? ~~Please define the term "NEPA values."~~ This section does not include discussion of habitat loss, especially with regards to threatened or endangered species, and does not discuss impact to water quality or habitat associated with Site 7c in Bear Creek Valley.

X. Section 2.10.10, NEPA Values, p. 2-32. Environmental Justice. There is one paragraph in the D1 ROD addressing Environmental Justice (located in the "NEPA Values" section). As written, the D1 ROD insufficiently addresses environmental justice. Environmental Justice is about the disproportionate environmental burdens on a community from cumulative environmental impacts, not limited to the particular decision at hand (EMDF). An evaluation is needed to identify communities with potential environmental justice concerns. If communities with environmental justice concerns are present, further evaluation of the concerns and appropriate responses may be needed. EPA has provided some resources on this matter, and is available for further consultation.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Third paragraph. Specify that a land use change to restricted recreational use is selected for Zone 1 for short and long term, and state the rationale for that change. Land use is not being changed from unrestricted to restricted recreational because there are no trespassing signs; rather, the land use change is being made to provide a buffer between the landfill and potential human access (or other reason that should be stated). The text states that fish consumption advisories and prohibitions on fishing are in place, but ~~please need to~~ include the reasons for the advisories and prohibitions, and whether these advisories and access (no trespassing) prohibitions will be needed in the long term.²

X. Section 2.12.1, Summary of the Rationale for the Selected Remedy, p. 2-35. The text states:

- The site is **adjacent** to an existing area designated as a CERCLA waste management area (i.e., EMWMF) along with several other CERCLA disposal areas in BCV.

This sentence is not clear and should be revised. The Site 7c EMDF location will be approximately 1.5 miles west of the existing EMWMF. While land use designation Zone 2 (the area containing the EMDF) is adjacent to Zone 3 (the area containing the EMWMF) the location of the EMDF is not "adjacent" to the existing EMWMF. Additionally, the italicized text is not accurate and should be changed to reflect TDEC-permitted Resource Conservation and Recovery Act managed landfills and not multiple CERCLA-managed landfills.

X. Figure 2.5. EMDF conceptual site layout, p. 2-36. Please label D-11 East. It is discussed in the text, but not shown on the figure. Will there be a settling basin for uncontaminated stormwater (non-contact water)? Please identify this feature (if present) in this figure.

X. Section 2.12.2, Description of the Selected Remedy, p. 2-38. Last bullet. The text states that the remedy includes "Change of the initial land use designation used to set remediation goals in BCV Zone 2 to future DOE-controlled industrial land use of the area." Additional text should be added to indicate that the land use designation for BCV Zone 1 is also being changed, in this case, from unrestricted to restricted recreational.

X. Section 2.12.2.1, (Conceptual design of EMDF and infrastructure). p. 2-38. "The landfill will not be

constructed over NT-10 or NT-11, but the berm may be placed over D-10W,” yet Figure 2.5 (EMDF conceptual site layout) indicates that the support facilities [i.e., landfill wastewater treatment system (LWTS), storage area, leachate/contact water storage] and Site 7b Borrow Area will be constructed over an unnamed creek. The ROD includes no discussion regarding the short- and long-term impact on this creek or how Applicable and Relevant and Appropriate Requirements (ARARs) will be met. It should be noted that diversion ditches are discussed in the ROD for rerouting D-10W but not for this creek. Revise the ROD to discuss the short- and long-term impact of constructing support facilities and Site 7b Borrow Area over this unnamed creek and how it will comply with ARARs.

X. Section 2.12.2.2, Construction activities, p. 2-38 and 2-39. Section 2.12.2.2 states, “Borrow material for EMDF will be obtained from the knoll just east of the facility and other locations at ORR, which will be developed during this early phase;” however, it is unclear why borrowing materials from an adjacent knoll is proposed when borrow material will be available from the EMDF site. As noted in the Phase 1 Construction subsection of Section 2.12.2.2, “The site will be graded to the top of the geologic buffer and the perimeter berm will be constructed to support the first cell(s).” If the materials excavated from the EMDF site are suitable, they should be reused. Revise Section 2.12.2.2 to clarify why borrowing materials from an adjacent knoll is proposed when borrow material will be available from the EMDF site.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-39. The text states:

These criteria are derived from various constraints placed upon EMDF, such as specific risk **or dose limits** and design elements in regulatory-based laws and guidance, as well as constraints on waste acceptance that are established through discussion and agreement among the FFA parties (DOE, EPA, and TDEC). (Bold and underlining added)

Remove the words “or dose limits” since CERCLA is based solely on risk. The DOE-based dose limits will not be considered or used to make decisions in this CERCLA ROD.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-39. Waste Acceptance Criteria. This section will be updated consistent with the agreements currently being negotiated by FFA parties.

X. Table 2.4. EMDF administrative WAC, p. 2-41. It is EPA’s understanding that mercury waste that is also RCRA hazardous waste by characteristic (i.e. toxicity) will be prohibited; please add to the table.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-40. The text states:

These two elements of the WAC (**along with additional procedures for implementing those WAC**) must be met before waste may be placed in the EMDF for disposal. (Bold added)

What are the “additional procedures” highlighted in bold text? Please add text to clarify and explain what this entails.

X. Section Analytic WAC, p. 2-42. The text states:

The inventory (WAC) limits are the maximum values allowed per the ARAR dose for protection of the public, which has been deemed protective under CERCLA by EPA.⁵

Footnote 5 states:

⁵ **EPA Administrator, Dispute Resolution Decision on radiological discharge limits for the Oak Ridge Reservation, December 31, 2020.** (Bold added)

Footnote 5 citing the 12/31/20, EPA Administrator decision addresses wastewater discharge and not the WAC. It is unclear if this statement is citing the old ARAR of NRC 10 CFR61, the 25/75/25 NRC dose and state rules 10 CFR 61.41/TDEC 0400-20-11-.16(2), or something different. Note that EPA considers the appropriate dose limit of 12 mrem as acceptable and nothing higher. Rewrite this sentence and modify the footnote to clarify the issue being discussed consistent with CERCLA risk.

X. Section 2.12.2.3, Waste acceptance criteria, Page 2-45.

A. Ambient water quality criterion for protection of aquatic life of 1,400 ppt represents the criterion maximum concentration (CMC) or the concentration aquatic organisms can be exposed to for brief intervals, typically less than 48-hours without suffering detrimental effects. The 1,400 ppt CMC could apply to a short-term release of mercury to surface water, but it is not protective of chronic exposures. Revise this section to discuss the point of compliance and frequency of monitoring in terms of how the criteria will be applied.

Commented [AC3]: I think this is a good comment, but not sure if it belongs in the WAC... what do you think? Both comments A and B are about monitoring. I think they are good, but where do they belong?

B. Substantive requirements of TDEC surface water quality standards (WQS) include, in addition to numerical standards, anti-degradation requirements, which means DOE must not degrade waters such that they no longer meet their designated uses. There are no chemical specific EPA National Recommended Water Quality Criteria (NRWQC) for radionuclides in the CWA. However, TDEC has narrative WQS:

“The waters shall not be modified through the addition of pollutants or through physical alteration to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or adversely affected...”

Although there is no chemical specific Tennessee WQS for radionuclides, the discharge must not violate TDEC narrative WQS. This means that radioactivity or other releases to the environment from the EMDF cannot cause damage to the diversity or productivity of benthic macroinvertebrate communities or fish communities. Radionuclides have long-half lives, and bioaccumulate in the environment. Monitoring for remedy effectiveness should include benthic macroinvertebrate and fish community surveys and measurements of mercury, PCBs, uranium, and radionuclides in forage fish and benthic macroinvertebrates to assess exposure. To the degree that baseline data are unavailable, data will be necessary to characterize the health of aquatic communities and their contaminant body burdens prior to the landfill construction to provide a point of comparison.

C. Text on Page 2-45 does not discuss control of mercury methylation although methylmercury is more mobile in the environment and is 90% of the total mercury in fish tissue. A study by Mathews et al. (2013) indicated that surface water concentration would likely need to be less than 51 ppt to achieve the tissue-residue based NRWQC for mercury in fish tissue of 0.5 ppm. Revise the text to discuss the effects of the proposed remedy on mercury methylation and how the proposed remedy will restore water quality in Bear Creek to meet ARARs and meet anti-degradation provisions of TDEC 0400-40-03.

Commented [AC4]: Good comment, but not sure it belongs with WAC

D. In response to public comments regarding the disposal of mercury in the EMDF, DOE has indicated the Department will meet all regulatory requirements pertaining to mercury treatment and onsite disposal of waste, including Resource Conservation and Recovery Act of 1976 requirements that dictate WAC for mercury. The ROD is deficient because the selected remedy lacks a remedial action objective to reduce the concentrations of mercury in Bear Creek to meet ARARs and restore beneficial uses nor has a waiver of the standards in the TDEC WQS been included in the selected remedy.

Commented [AC5]: We need an internal discussion about an RAO for restoration of BC before we pass this comment on to DOE.

X. Section Mercury Management Approach, p. 2-45. Replace the text in this section with the approach agreed to by the FFA parties.

X. Section 2.12.2.4, p. 2-45. The term “wastewater” should be defined in the ROD as “leachate and contaminated stormwater (also known as contact water).” For example: **Landfill wastewater from EMDF, defined as landfill leachate and contaminated stormwater (also referred to as contact water), will be stored and sampled.** This section may be the appropriate place for this clarification.

X. Section 2.12.2.4 Description of EMDF operations, p. 2-46. The text states:

“Compliance with these discharge limits will assure human health and the environment are fully protected to the requirements of CERCLA.”

The discharge limits pertain to compliance with the 10^{-5} risk specified in the Dispute Resolution Decision (footnote 6) and consistent with TDEC 0400-40-03-.03(4)(j) Footnote C, as determined based on site-specific exposure assumptions. These pertain to radionuclides and state that WACs should comply with a risk specified in TDEC rules. However, this provision may not be fully protective under CERCLA because risks of exposure to the environment to chemicals like mercury that bioaccumulate in biota were not considered. Please revise the text by removing the word “fully” and replacing it with a description of current/future risks, receptors, exposure pathways, and hazardous chemicals that are protected by the proposed remedy and the degree of protection provided, i.e., 10^{-5} risk, and any assumptions related to exposures that define the degree of protection afforded.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. The text refers to a “...wastewater treatment system...sized to accommodate the estimated wastewater volume to be treated and designed to remove contaminants projected to exceed discharge criteria”. There should be some statement in the ROD about how the wastewater volume to be treated has been (or will be) estimated and how contaminants projected to exceed discharge criteria have been (or will be) identified. Additionally, text should be added that explains the plans to minimize leachate or contact water generation during later phases of landfill operation.

X. Section 2.12.3, Cost Estimate for the Selected Remedy, Page 2-48 and Table 2.8, Total estimated project costs, p. 2-49. Based on Section 2.12.3 and Table 2.8, present worth costs for the alternatives were calculated using a real discount rate of 1.5 percent according to the Office of Management and Budget (OMB) Circular No. A-94, dated November 2016; however, it is unclear why the OMB Circular No. A-94, dated December 2020 was not utilized. Revise the ROD to utilize the current real discount rate.

X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-49. Table 2-8 (Total estimated project costs) includes the costs associated with the construction of Cell 5; however, the ROD, including Section 2.12.3 (Cost Estimate for the Selected Remedy), does not propose construction of five cells. Based on Figure 2.5 (EMDF conceptual site layout) and the text, only four cells are proposed. If Cell 5 will not be constructed, revise Table 2-8 to only include the costs associated with the construction of Cells 1-4. If Cell 5 will be constructed, revise the ROD to consistently present construction of five cells.

X. X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-49. Table 2-8 (Total estimated project costs) includes costs based on 2012 dollars which were updated to 2016 dollars; however, all costs in the ROD should be based on 2021 dollars. This is of particular concern given that the post-ROD

groundwater field demonstration (GWFD) will take at least two years, after which the costs will be even more out of date. Please revise the ROD to include 2021 costs to ensure the ROD meets the costing requirements outlined in the ROD Guidance.

X. Section 2.12.4, Expected Outcomes of the Selected Remedy, Page 2-49 and Table A.2, Location Specific ARARs. Please include Clean Water Act (CWA) 404(b)(1) as an ARAR. Text in Section 2.12.4 indicated wetlands mitigation would be implemented as required by ARARs. However, the text did not describe controls to prevent disruption of, impact to, or alteration of wetlands and how effectiveness of such controls would be measured using EPA's wetlands guidance with the goal of "no net loss": [HYPERLINK "<https://www.epa.gov/cwa-404/background-about-compensatory-mitigation-requirements-under-cwa-section-404>"]. Revise the text to cite the rules that require wetlands mitigation and refer to Table A.2. If loss is anticipated, outline the process by which on-site or off-site compensatory mitigation will be proposed.

Commented [AC6]: We should clear this comment with Martha before passing it on to DOE.

X. Section 2.13.1, Overall Protection of Human Health and the Environment, p. 2-50. Please add reference to the groundwater RAO in this paragraph.

X. Section 2.13.2, Compliance with ARARs, p. 2-50. The text states:

The following NRC-based TDEC regulations are relevant and appropriate: TDEC 0400-20-11-.16(2) [equivalent to 10 CFR 61.41] and TDEC 0400-20-11-.16(4) [equivalent to 10 CFR 61.43]. These ARARs are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection of human health and the environment.

The text should be revised to state that Tennessee and the EPA NPDES regulations that pertain to water-quality based effluent limitations and the Tennessee Water Quality Standards regulations establishing designated uses and criteria to protect those uses are also relevant and appropriate requirements used to develop limits for ~~to the discharge of radionuclides to surface water/wastewater.~~

This position is consistent with the EPA Administrator's decision (December 30, 2020) which states:
...regulations that establish water quality based effluent limitations under the Clean Water Act National Pollutant Discharge Elimination System program as well as Tennessee's NPDES regulations for establishing water quality-based effluent limitations, certain Tennessee Water Quality Standards regulations and certain Nuclear Regulatory Commission regulations for low-level radioactive waste disposal are relevant and appropriate requirements for purposes of establishing preliminary remediation goals...for addressing discharges containing radionuclides from two CERCLA on-site landfills at ORR.

X. Section 2.13.2.1, Waiver to TSCA 40 CFR 761.75(c)(4), p. 2-51. The text states:

DOE justifies a waiver of the TSCA hydrologic conditions requirement on the basis that the EMDF will be at least as protective due to the following design elements, which provide protectiveness exceeding that provided through the siting requirements (please note that floodplains and shorelands are being avoided and that the site will have monitoring wells and leachate collection):

- More stringent liner and leachate detection and collection requirements under RCRA
- Low permeability vadose zone geologic buffer material as committed to in this ROD.

A third bullet must be added which states:

- A groundwater monitoring network around the EMDF compliant with RCRA requirements.

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-54. All of the data to be collected under the EPA Administrator's decision is to be documented in the revised *Focused Feasibility Study* [FFS] for *Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-2664&D3) Brackets added.. This FFS is to remain open and run parallel to the completion of the D2 EMDF ROD. The FFS will be approved once all the radionuclide-specific fish data have been collected, analyzed, and the radiological discharge limits derived. This FFS will then be placed in the Administrative Record for public availability. The public will be informed of the contents of the FFS through specific public outreach activities before the D2 EMDF ROD is approved and signed by the EPA Administrator. All of the information stated above must be included in this section of the EMDF ROD to inform the public.

X. Section 2.13.3, Cost Effectiveness, p. 2-55. The total present worth cost is based on a 2016 estimate; please update for 2021.

X. Section 2.14, p. 2-56. Documentation of Significant Changes. The Proposed Plan was released in September 2018; the date provides context for the rest of the discussion in this section. Please add the public review release date and approval dates to this section.

X. Section 2.14, Documentation of Significant Changes, p. 2-56. According to Section 2.14, a slight modification to the eastern boundary of the landfill was made as part of the conceptual design process "but it does not change any of the evaluation of alternatives including demonstration of protectiveness or compliance with ARARs;" however, the reason for this modification is not discussed. This modification is of particular note given the location of the Douglas Chapel Cemetery, as shown on Figure 2.3 (Phase I characterization and site characteristics of the EMDF site), to the eastern boundary. Revise the ROD to clarify the reason for the modification to the eastern boundary of the landfill and to explain how it remains protective and compliant with ARARs.

X. Section 2.13.6, 5-Year Reviews, p. 2-56. Revise text to state when the five-year reviews will start to clarify whether it is during the time when the landfill is open to receiving wastes or only upon landfill closure. Revise to discuss frequency of monitoring and to whom and in what format the monitoring results will be reported in years between the five-year reviews. Revise the text to describe the entities that will be responsible for reviewing the monitoring data and deciding whether the remedy remains protective of human health and the environment. Explain by what criteria or standards protectiveness will be gauged. Include the point of compliance and list parameters that will be monitored.

X. Section 2.14.1, Impacts to Reindustrialization, p. 2-57. The text states:

DOE's current goal is to transfer all of ETPP out of DOE ownership and for it to be beneficially reused. The creation of a waste handling facility is inconsistent with this goal and a deterrent to future beneficial reuse of the site. (Bold added)

Figure 2.6. Proposed Rail Waste Route at ETPP, p. 2-58. The figure identifies three separate areas across ETPP as "Retained By DOE." All three sites are former landfills and collectively they comprise approximately 63 acres. These sacrifice areas will require perpetual DOE controls on both the land surface and any groundwater contamination originating from these areas. This is inconsistent with the italicized sentence above. Please rewrite the italicized sentence to more accurately reflect DOE's own anticipated Final Heritage Center End State Vision (with airport) shown in Figure 2.6.

X. Section 2.14.1, Impacts to Reindustrialization, p. 2-57. One statement in this section reads "...daily hauling of radioactive waste is inconsistent with the development of the National Historic Park." This statement is unquestionably factual but would it not likewise in some sense apply to the removal and hauling of waste material and soils by truck from at least some of the same source areas to the EMDF? If so, then citing the movement of radioactive or other waste materials by rail as a negative aspect of the off-site disposal option would seem to be a misplaced argument for favoring onsite over offsite disposal unless it is presented in a comparative analysis to the waste handling and hauling elements of the onsite disposal option. Please clarify.

X. RESPONSIVENESS SUMMARY, SUMMARY OF COMMENTS AND RESPONSES,
Socioeconomic impact, pp. 3-6 and 3-7. The text states:

To the contrary, jobs associated with construction and operation of the facility, and the acceleration of cleanup enabled by onsite disposal and subsequent opportunities that **[it]** would present to the Y-12 and Oak Ridge National Laboratory, are expected to benefit both the economy and perception issues associated with environmental conditions in Oak Ridge. (Bold added)

Please insert the word "it" where indicated by brackets above or rewrite for better clarity.

X. RESPONSIVENESS SUMMARY, SUMMARY OF COMMENTS AND RESPONSES,
Socioeconomic impact, p. 3-7. The text states:

Each of the comments received on the Proposed Plan was considered as to its potential implications to the ROD.

Please rewrite the sentence. For example, "Each comment received on the Proposed Plan was considered for its individual consequence to the ROD."

X. Part 3, Responsiveness Summary: This section of the ROD provides a summary of outreach commitments previously met to ensure public awareness and DOE's response to comments received from the public review and comment period. The comments from 194 individuals along with DOE's response is included in this section. In summary, the DOE identified the four general areas of supportive comments and responded with a standard response. Many of the unsupportive or opposing comments requested additional information such as:

- "Opportunity to review and comment on the waste acceptance criteria (WAC) prior to issuing with the ROD"
- Concerns with mercury-contaminated waste
- Need for waivers for regulatory compliance
- Oak Ridge's underlying geology and rainfall
- Overestimation of offsite disposal cost and risk
- Impact of hazardous waste disposal site in Oak Ridge on home values and attracting people/businesses to Oak Ridge."

The DOE developed a standard response addressing each of the concerns listed above. For several comments, the DOE provided the standard responses and included additional language specific to the public comment. However, not every response addressed the concerns raised by public comment. The following responses lack specificity and may not fully address the comment:

- The standard responses provided did not address the subject or concern(s) of the public comment: Comments 114, 144, 149, 155, and 180.
- The response is insufficient and additional information may be warranted:

- Comment 115: The response does not address the citizen's concern. For example, the DOE chose not to respond to the statement that, "Choosing a solution before all ground water impact testing is complete (per David Adler) just screams that a decision has already been made regardless of environmental impact." The response should explain why shipping wastes to an area with an extremely low water table would not be preferable.
- Comment 117: The response does not address the request for a required environmental impact statement (similar to Comment 128) and provides an insufficient response to questions regarding hydrogeology.
- Comment 118: The response does not address concerns that engineering design components (diversion structures, the gravel drains, the pipes, the liners, the caps) can be expected to fail.
- Comment 122: The response does not address socioeconomic concerns or address the request for a cost-benefit analysis.
- Comment 124: The response does not address socioeconomic concerns.
- Comment 128: The response does not address concerns regarding siting, harm to an undisturbed area, or proximity of residences.
- Comment 129: The response do not address the preference for disposal in a dry area (such as Utah).
- Comment 130: The response do not address the preference for disposal in a dry area (such as Utah).
- Comment 132: The response does not address concerns regarding siting or mercury contamination.
- Comment 134: The response does not address concerns regarding unstable geology, groundwater, or proximity to population.
- Comment 135: The response does not address concerns regarding the preference for disposal elsewhere.
- Comment 138: The response does not address concern regarding the performance of the liners.
- Comment 147: The response does not address the concerns regarding mercury contamination.
- Comment 154: The response does not address the concerns regarding mercury contamination.
- Comment 160.11: The response does not address the concerns including, but not limited to underdrains, mercury contamination, or separation of waste from groundwater.
- Comment 160.17: The response does not address the comment. For example, the citizen requests an update on when the Environmental Management Waste Management Facility will be 100 percent full and the current contingency plan if this Proposed Plan is not approved by that time. None of the numerous and detailed technical concerns are addressed.
- Comment 162: The response does not fully address the concerns regarding future rainfall amounts and how this may impact the design.
- Comment 165: The response does not fully address the comment. Additional response is warranted.
- Comment 167: The response does not address concerns regarding hydrogeology or the use of underdrains.
- Comment 168.24: The comment warrants a response to clarify the status of the administrative record supporting the proposed plan.
- Comment 174: The response does not fully address the comment.
- Comment 175, Part 2: The DOE does not provide a response to Part 2 of the comment.
- Comment 179: The response does not adequately address the comment, including the proximity of residences with private wells. Additional response is warranted.
- Comment 184: The response does not address several items including: 2.d (PDF page 292), 2.e (PDF page 292), 2.b (PDF 294), and 2.c (PDF 294).

The DOE should reevaluate their responses to the comments listed above and determine what additional information can be added to address the public concern.

X. Appendix A APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, Table A.2, Location Specific ARARs, p. A-8. The text considers the presence of floodplains as defined in 10 CFR 1022.4 However, not all executive orders and FEMA regulations pertaining to floodplains were considered. Federally approved projects must comply with Executive Order 11988 (Floodplain Management), as amended by Executive Orders 13690 and 11990 (Protection of Wetlands). The Federal Emergency Management Agency (FEMA) regulations in 44 CFR Part 9 set forth the responsibilities to implement and enforce Executive Order 11988, as amended by Executive Orders 13690 and 11990. Likewise, FEMA regulations found at 44 CFR 60.3(d)(2) and (3) prohibit encroachments that would result in any increase in flood levels during occurrence of base flood discharge. Please revise the ROD to discuss any long-term impacts of altered surface water hydrology and wetlands filling on potential for flooding. Please revise Table 2.1 comparing alternatives to consider potential long-term impacts on hydrology and flood retention.

Commented [AC7]:

Commented [AC8R7]: Let's share this with Martha before passing on to DOE.

X.

X.

X.

X.

(End of Comments)